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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,755	05/16/2002	Stanton James Dent	DC4968	9286

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EXAMINER

IM, JUNGHWA M

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 05/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/068,755	Applicant(s) DENT ET AL.	
	Examiner Junghwa M. Im	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 23-29 is/are pending in the application.
- 4a) Of the above claim(s) 14-19 and 23-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>6</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION***Election/Restrictions***

Applicant's election with traverse of claims 1-13 in Paper No. 7 is acknowledged. The traversal is on the ground(s) that the product and process claims should be examined as part of the same patent application without adding a burden to Examiner because of the close interrelationship between the product and the process claims. This is not found persuasive because these inventions are distinct for the reasons as previously mentioned on Election/Restriction paper dated April 8, 2003 with a note that instant invention is related to a PWB which is a commonly interchangeable term for a PCB. Furthermore, it would be indeed an added burden to examine the Group II method invention in addition to the elected Group I device invention since each of both groups has a distinctive class with extended subclasses. The requirement is still deemed proper and is therefore made **FINAL**.

Cancellation of claims 20-22 is confirmed via a telephone conversation with Catherine Brown on April 23, 2003.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akamo et al. (EP 1041117), hereafter Akamo in view of Shephard (US 6239378).

Regarding claim 1, Figure 1 of Akamo shows a semiconductor wafer which inherently possesses an active surface, bonding pads, and a cured silicone covering a portion of the active surface, and the silicone member comprising an organopolysiloxane containing an average of at least two silicon-bonded alkenyl groups per molecule (paragraph 0016), an organohydrogensiloxane containing an average of at least two silicon-bonded hydrogen atoms per molecule (paragraph 0035), an inorganic filler (paragraph 0038), a hydrosilylation catalyst (paragraph 0030), and heating the silicone deposit to form the cured silicone member (paragraph 0039).

Since Akamo discloses a cured silicone member having the same composition to the Applicant's disclosure, it is obvious that the cured silicone of Akamo has a coefficient of linear expansion and a modulus in a vicinity of the range recited in the pending claim.

Akamo discloses a composition of a semiconductor packaging substantially identical to the pending claim except an inorganic filler with a specified surface area. Shephard discloses an inorganic silica filler for a curable silicon which is identical material recited in the Applicant's specification. It would have been obvious to one of ordinary skill in the art at the time of the invention to use silica for the filler of Akamo with the teaching of Shephard since a reinforcing silica filler increases mechanical properties in the heat cured silicon composition as taught in column 4, lines 59-63 of the specification of Shephard.

Regarding claim 2, it is obvious that the wafer further comprises streets for

separation of devices on a wafer.

Regarding claim 3, Akamo does not teach a thickness of the cured silicon. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have a thickness of the cured silicone in a range recited in the pending claim, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only in routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 4, Akamo discloses a composition of the organohydrogensiloxane to offset an alkenyl group (paragraph 0035).

Regarding claims 5-6, Shephard discloses an inorganic silica filler.

Regarding claims 7-9, Akamo discloses a concentration of a hydrosilylation catalyst inhibitor with platinum within the recited range (paragraphs 0030, 0031).

Regarding claims 10, Akamo discloses the semiconductor package further comprising an organopolysiloxane resin consisting essentially of $R^3SiO_{1/2}$ siloxane units and $SiO_{4/2}$ siloxane units wherein R^3 is independently selected from monovalent hydrocarbon and monovalent halogenated hydrocarbon groups (paragraphs 0017, 0037).

Regarding claims 11-12, Figure 1 of Akamo discloses a packaging device further comprising a cured organopolysiloxane dome layer.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akamo and Shephard as applied to claim 1 above, and further in view of Fjelstad (US 6284563).

Regarding claim 13, Akamo and Shephard shows a silicon wafer with a structure

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substantially identical to the instant invention except a connection of a metal trace.

Fjelstad shows a semiconductor package comprising a semiconductor wafer 100 having an active surface 115 comprising at least one integrated circuit 170, 175 wherein each integrated circuit has a plurality of bond pads 110, a cured silicone layer 140 with a thickness range of 74-200 um covering a portion of the active surface of the wafer except the bond pads, and a metal trace 170, 175 having a proximal end attached to each bond pad 110 and a distal end lying on the surface of the cured silicone layer 140.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of Fjelstad to a semiconductor device of Akamo and Shephard to have a connection of the metal trace to a bond pad and a cured silicone layer since such a configuration alleviates stresses created between the substrate and the chip.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junghwa M. Im whose telephone number is (703) 305-3998. The examiner can normally be reached on MON.-FRI. 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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jmi
May 4, 2003

Tom Thomas

TOM THOMAS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800